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IS 10762 (1983): Tuna Canned in Curry [FAD 12: Fish and Fisheries Products]



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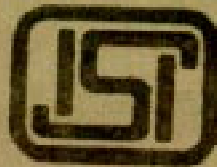
“Knowledge is such a treasure which cannot be stolen”

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Indian Standard
SPECIFICATION FOR
TUNA CANNED IN CURRY

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR TUNA CANNED IN CURRY

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Indian Standard

SPECIFICATION FOR TUNA CANNED IN CURRY

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 December 1983, after the draft finalized by the Fish and Fisheries Products Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 This standard has been formulated with a view to safeguarding consumer interest and helping the processors in exercising proper quality control of the product.

0.3 In the preparation of this standard due consideration has been given to the provisions of the *Prevention of Food Adulteration Act*, 1954 and the rules framed thereunder. However, this standard is subject to the restrictions imposed under these, wherever applicable.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes requirements and methods of sampling and test for tuna canned in curry.

1.1.1 The term 'tuna' shall apply to the following species of fish:

<i>Common English Name</i>	<i>Zoological Name</i>
a) Yellow fin tuna	<i>Thunnus albacares</i> syn. <i>Neothunnus</i> (Bonn) <i>macropterus</i> : <i>Neothunnus</i> <i>itisibi</i>

*Rules for rounding off numerical values (*revised*).

b) Albacore	<i>Thunnus alalunga</i> (Bonnaterra)
c) Blue fin tuna	<i>Thunnus thynnus</i> syn. <i>Thunnus thynnus orientalis</i> (Tormminck and Schlegel)
d) Big eye tuna	<i>Thunnus mebachii</i> syn. <i>Parathunnus obesus mebachii</i>
e) Northern blue fin tuna	<i>Thunnus tonggol</i> syn. <i>Kishinoella tongga</i>
f) Oceanic skip jack	<i>Katsuwonus pelamis</i> (Linn.)

2. GRADES

2.1 The tuna shall be of the following two grades:

<i>Grade Designation</i>	<i>Mass, Whole, g</i>
Large	above 1 000
Small	up to 1 000

3. REQUIREMENTS

3.1 General

3.1.1 The tuna shall be of good quality and free from any evidence of degradation and spoilage. The material to be canned shall be free from heads, bones, skin, tail tips, fins and entrails and shall be free from any taint suggestives of the defective raw material. The skin shall not be dark in colour and shall be free from discoloration.

3.1.2 Fat — Only pure, wholesome refined edible fat shall be used for cooking, the percentage of fat in the total contents of a can shall be less than 4 percent by volume.

3.1.3 Salt — Salt of edible quality preferably conforming to IS : 594-1962* shall be used. The percentage of salt in the final product shall not be less than 1 percent and not more than 2 percent.

3.1.4 Other Ingredients — Spices and all other ingredients used shall be clean, sound and wholesome and fit for human consumption and shall conform to relevant Indian Standard, if available.

3.2 Freedom from Artificial Colouring Matter and Firming Agents — The material shall be free from artificial colouring matter and firming agents except common salt.

*Specification for common salt for fish curing (revised).

3.3 Additives — No additives other than spices and common salt shall be used.

3.4 Preparation — The fish curry shall be prepared as agreed to between the purchaser and the packer, care being taken that during preparation all the meat juices or other ingredients are retained in full, during processing. Any of the appropriate permitted spices and condiments may be used.

3.4.1 Processing — Processing shall be at such a temperature, and for such length of time as will ensure thorough cooking and adequate sterilization of the finished product. The water used for the cooling of can shall be maintained in clean condition and chlorinated to maintain a minimum free residual chlorine concentration of one mg/kg (ppm).

3.5 Hygienic Requirements — The material shall be prepared, filled and processed under hygienic conditions and only in premises maintained in a thoroughly clean and hygienic manner [*see* IS : 4303 (Part 2)-1975*] and duly approved or licensed by the authorities concerned for fish products. The water used for processing of fish shall conform to IS : 4251-1967†.

3.5.1 The water used in processing of tuna shall be of potable quality and shall contain 5 mg/kg (ppm) of residual chlorine.

3.6 Packing in Cans

3.6.1 The material shall be packed in suitable containers and hermetically sealed. If the cans are lacquered, the lacquer used shall be non-toxic and shall be of such quality that it does not impart any foreign taste and smell to the contents of the can and does not peel off during processing and storage of the product. The lacquer shall be not soluble in oil or brine to any extent. The can shall be free from rust. The cans shall be thoroughly cleaned before filling.

3.6.2 The tuna shall be filled in the cans in such a manner that they remain in the same axis, that is, there shall be no crossfilling.

3.6.3 The tuna in any can shall be of uniform size.

3.7 Requirements for the Finished Product

3.7.1 The finished product shall have the odour, flavour and colour characteristic of the species. The flesh shall be firm in texture.

*Code for hygienic conditions for fish industry : Part 2 Canning stage (*first revision*).

†Quality tolerances for water for processed food industry.

3.7.2 Disintegrated Units — The contents of the can on opening shall not display any appreciable disintegration. Pieces from which portions have separated out would be treated as disintegrated units. The percentage of detached portions of fish, calculated on the basis of the drained mass shall not exceed 5 percent by mass based on the average of 5 cans.

3.7.3 The product shall be free from any type of poisonous and deleterious substances.

3.7.4 The product shall be free from foreign materials, such as sand, dirt and insects.

3.7.5 Vacuum — The can shall give a negative pressure, when punctured. If round cans are used, the vacuum shall be not less than 100 mm Hg.

3.7.6 Drained Mass — The average proportion of fish to curry shall be in the ratio of 60 : 40 when tested by the method given in Appendix A. A tolerance of ± 5 percent is permitted provided average content of fish on the basis of 5 cans lot shall not be less than 60 percent of the net mass.

3.7.7 The material shall also satisfy the limits for heavy metals and microbiological activity prescribed in Table 1.

TABLE 1 LIMITS FOR HEAVY METALS AND MICROBIOLOGICAL ACTIVITY FOR TUNA CANNED IN CURRY

Sl No.	CHARACTERISTIC	LIMIT	METHOD OF TEST, REF TO	
			Appendix in IS : 2168-1971*	Appendix in IS : 9808-1981†
(1)	(2)	(3)	(4)	(5)
i)	Arsenic, ppm, <i>Max</i>	1	B	—
ii)	Lead, ppm, <i>Max</i>	5	C	—
iii)	Copper, ppm, <i>Max</i>	10	D	—
iv)	Zinc, ppm, <i>Max</i>	50	E	—
v)	Tin, ppm, <i>Max</i>	250	F	—
vi)	Mercury, ppm, <i>Max</i>	0.5	—	H
vii)	Microbiological activity	Shall satisfy the requirements of the test	G	—

*Specification for pomfret canned in oil (*first revision*).

†Specification for fish protein concentrates.

3.7.8 The curry shall have the characteristic flavour.

4. PACKING AND MARKING

4.1 Packing — Unless agreed to otherwise between the purchaser and the vendor, the cans shall be packed in cases sufficiently strong to withstand rough handling by all modes of transportation without damage to their contents.

4.2 Marking — The labelling of the cans shall be done either by printing or lithographing on the cans themselves or by attaching labels printed on paper, subject to agreement between the purchaser and the vendor.

4.2.1 Each container shall be legibly and indelibly marked with the following information in addition to information required under *Prevention of Food Adulteration Act* and rules:

- a) Name of the material along with brand name, if any;
- b) Name and address of the manufacturer (optional for export);
- c) Net mass of the contents of the can;
- d) Proportion of fish curry in the cans, if required by the purchaser;
- e) Nature of the canning medium used and ingredients;
- f) Licence number, date and authority, if any, under which the manufacturer has been permitted to can the product (optional for export);
- g) Batch or lot number and the date of manufacture; and
- h) Other requirements in accordance with the *Weights and Measures (Packed Commodities) Rules, 1977*.

4.2.1 Each container may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors may be obtained from the Indian Standards Institution.

5. SAMPLING

5.1 Representative samples of the material for the test shall be drawn as prescribed in Appendix B.

6. TESTS

6.1 The tests shall be carried out as prescribed in **3.7.2, 3.7.5, 3.7.6** and the relevant appendices specified in col 4 and 5 of Table 1.

6.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1977*) shall be employed in tests.

NOTE — ' Pure chemicals ' shall mean chemicals that do not contain impurities which affect the test results.

A P P E N D I X A

(*Clause 3.7.6*)

DETERMINATION OF THE PROPORTION OF FISH TO GRAVY

A-1. APPARATUS

A-1.1 2·80-mm IS Sieve — BS Sieve 7, ASTM Sieve 7 and Tyler Sieve 7 have their apertures within the limits specified for the IS Sieve and may, therefore, be used as 2·80 mm IS Sieve [*see* IS : 460 (Part 1) - 1978†].

A-1.2 16-mm IS Sieve

A-2. PROCEDURE

A-2.1 Record the mass of the container, warm the contents of the can containing fish. Open the container and drain over 16-mm IS Sieve. Wash the empty container with hot water and pour it over the fish. Dry and weigh the empty container. Pour hot water over the fish three or four times to remove all adhering condiments and fat. Ensure that the fish are free from all adhering matters; if necessary, repeat washing with hot water. Allow the fish to be completely drained of water. Place the fish in the empty container and weigh. Calculate the proportion of fish to gravy.

A-2.2 When determining the proportion of fish content to gravy, 2·80-mm IS Sieve shall be used. The gravy should be ground to a fine paste so as to pass through the sieve.

*Specification for water for general laboratory use (*second revision*).

†Specification for test sieve : Part 1 Wire cloth test sieves (*second revision*).

APPENDIX B

(Clause 5.1)

**SAMPLING OF TUNA CANNED
IN CURRY****B-1. GENERAL REQUIREMENTS**

B-1.1 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

B-1.2 Samples shall be tested at a laboratory agreed to between the purchaser and the vendor.

B-2. SCALE OF SAMPLING

B-2.1 Lot — In any consignment, all cans of the same size, belonging to the same batch of manufacture shall be grouped together to constitute a lot.

B-2.2 For ascertaining conformity of the material to the requirements of the specification, samples shall be tested from each lot separately.

B-2.3 The number of cans to be selected from a lot shall depend on the size of the lot and shall be according to Table 2.

TABLE 2 SCALE OF SAMPLING

NUMBER OF CANS IN THE LOT	NUMBER OF CANS TO BE SELECTED
(1)	(2)
Up to 300	5
301 to 1 000	10
1 001 to 3 000	15
3 001 and above	20

A-2.3.1 These cans shall be selected at random from the lot. In order to ensure the randomness of selection, procedures given in IS : 4905-1968* may be followed.

B-2.3.2 If the cans are packed in cases, at least 10 percent of the cases subject to a minimum of 2 shall be sampled at random and approximately equal number of cans taken from each selected packing case so as to constitute the requisite sample size (see Table 2).

*Methods for random sampling.

B-3. NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

B-3.1 Vacuum and Visual Examination — Each of the cans selected from the lot according to **B-2.3** shall be first tested for vacuum **3.7.5** and then examined for visual requirements given in **3.7.1**, **3.7.3** and **3.7.4**.

B-3.1.1 The lot shall be declared as conforming to these requirements if none of the sample cans fails to satisfy any of these requirements.

B-3.2 Drained Mass (3.7.6) Disintegrated Units (3.7.2) — The lot having been found satisfactory according to **B-3.1** shall be tested for these requirements.

B-3.2.1 The lot shall be deemed to have met the requirements for drained mass and disintegrated units if the average of the test results for 5 cans satisfies the relevant specification requirements.

NOTE — Whenever there are more than 5 cans, they shall be randomly distributed into groups of 5 cans each.

B-3.3 Metallic Impurities — The lot having met the requirements in **B-3.1** and **B-3.2** shall be tested for arsenic, lead, copper, zinc, tin and mercury according to **3.7.7** of the specification on the basis of a composite sample prepared by mixing approximately equal quantity of the material from all the cans sampled from a lot.

B-3.3.1 The lot shall be declared as conforming to these requirements if all the test results on the composite sample meet the relevant specification requirements given in Table 1 of the specification.

B-3.4 Microbiological Activity — The lot having been found satisfactory according to **B-3.1**, **B-3.2** and **B-3.3** shall be finally tested for microbiological activity according to **3.7.7**.

B-3.4.1 Incubation at 37°C — Half (approx) of the cans shall be incubated at 37°C for not less than 14 days and subjected to bacteriological examination.

B-3.4.2 Incubation at 55°C — The remaining half of the cans shall be incubated at 55°C for not less than 14 days and subjected to bacteriological examination.

B-3.4.3 For declaring the conformity of the lot to the microbiological requirements, all the test results obtained in **B-3.4.1** and **B-3.4.2** shall satisfy the requirements of the test.